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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/509,987	09/30/2004	Dominique David	034299-604	2953

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Thelen Reid & Priest
P O Box 640640
San Jose, CA 95164-0640

EXAMINER

MOFFAT, JONATHAN

ART UNIT	PAPER NUMBER
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2863

DATE MAILED: 11/01/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/509,987	Applicant(s) DAVID ET AL.	
	Examiner Jonathan Moffat	Art Unit 2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 August 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Applicant's amendments along with the request for continued examination, filed 8/14/2006, are accepted and appreciated by the examiner. Applicant has canceled claims 19-20 and incorporated their limitations into independent claims 1 and 14. Claims 2-3, and 9 have also been amended. Examiner contacted applicant and discussed the claims telephonically on 10/24/2006 concerning the current claims and claim interpretation. See previously filed interview summary for further detail.

Specification

The disclosure is objected to because of the following informalities:

On the first line of paragraph 0049, the word "th" should most likely be deleted.

Appropriate correction is required.

Claim Objections

Claim 11 is objected to because of the following informalities:

Claim 11 is objected to for a minor grammatical error. The phrase "and means (M) for registering successive..." should most likely be replaced with "further comprising means (M) for registering successive...".

Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

1.

Claims 1-3, 9, 11, 14-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Griffis (US pat 5179525).

With respect to claim 1, Griffis discloses an apparatus comprising:

1) A sensor of angular position, capable of being affixed to the solid and of supplying at least a measuring datum representative of the orientation of the solid (Figs 6,7). Here, although leg lengths are technically being measured, the associated description discloses that these are converted into angular position vectors.

2) Calculation means for generating test data representative of a random estimated orientation of the solid (Fig 8b and column 12 line 57-column 13 line 10).

3) Means for modification of the random estimated orientation of the solid by confrontation of the measuring datum and test data (Fig 8b and column 12 line 57-column 13 line 10).

With respect to claim 2, Griffis discloses that the modification means of the random estimated orientation comprise a first comparator connected to the sensor and to the calculation means for generating test data, for receiving the measuring datum and at least a test datum, and for establishing at least a difference between the test datum and the measuring datum (Fig 8b and column 12 line 57-column 13 line 10).

With respect to claim 3, Griffis discloses a second comparator with a threshold for comparing the difference established by the first comparator to a threshold value and to validate the random estimated orientation, when the difference established by the first comparator is less than the threshold value (column 13 lines 3-54). The equation is run iteratively with successive measurements in order to minimize the difference by reducing the step to zero. When it reaches this value the answer may be output essentially comparing that value and the difference to a threshold of zero.

With respect to claim 9, Griffis discloses that the modification means of the random estimated orientation and/or the calculation means for generating a test datum comprise a calculator for establishing a new estimated orientation and/or a new test datum according to an error gradient descent method (column 13 lines 10-45).

With respect to claim 11, Griffis discloses means for registering successive estimations of the orientation of the solid (column 13 lines 10-40).

With respect to claim 14, Griffis discloses a method comprising:

- a) Capture of measuring data originating from at least one angular position sensor and the establishment of a test datum representative of an a random estimated orientation of the solid (column 12 lines 57-61).
- b) Confrontation of the test datum and the measured datum (column 12 lines 57-61).
- c) Establishment of a new test datum representative of a new estimated orientation of the solid, corrected as a function of the preceding confrontation (column 13 lines 40-52).
- d) Repetition of stages b) and c) (column 13 lines 40-52).

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With respect to claim 15, Griffis discloses that stages b) and c) are repeated until the confrontation reveals a difference between the test datum and the measuring datum less than a determined threshold (column 13 lines 3-54). The equation is run iteratively with successive measurements in order to minimize the difference by reducing the step to zero. When it reaches this value the answer may be output essentially comparing that value and the difference to a threshold of zero.

With respect to claim 16, Griffis discloses that, during stage c), correction calculation is made according to a error gradient descent method (column 13 lines 10-45).

With respect to claim 17, Griffis discloses that confrontation between the test data and the measuring datum comprises the establishment of difference data between successive test data and the measuring datum (column 12 lines 62-68).

With respect to claim 18, Griffis discloses a process of motion capture of a solid characterized in that the process is repeated with successive measuring data (column 13 lines 1-52).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2.

Claims 4-8, 10, 12-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Griffis (US pat 5179525) in view of Abe (US pat 6,636,826).

With respect to claim 4, Griffis fails to disclose at least an angular position sensor sensitive to gravity and one sensitive to a magnetic field.

With respect to claim 5, Griffis fails to disclose the sensor sensitive to gravity comprise an accelerometer and the sensor sensitive to a magnetic field comprise a magnetometer.

With respect to claim 7, Griffis fails to disclose that the means for generating test data comprise a calculator for calculating test data as a function of parameters characteristic of a response of the angular position sensor

With respect to claims 8, 10 and 12, Griffis fails to disclose the calculator and means for registering are localized on the solid.

With respect to claim 13, Griffis fails to disclose a timer for rating the registration of the successive estimations of the orientation of the solid

Abe teaches, with respect to claim 4, that the device comprise at least an angular position sensor sensitive to the gravity and at least an angular position sensor sensitive to a magnetic field (Fig 3 items 401-404).

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Abe teaches, with respect to claim 5, that the sensor sensitive to gravity comprises at least an accelerometer and the sensor sensitive to a magnetic field comprises at least a magnetometer (Fig 3 items 401-404).

Abe teaches, with respect to claim 6, two sensors each having three axes of sensitivity (Fig 3 items 30, 40).

Abe teaches, with respect to claim 7, that the means for generating test data comprise a calculator for calculating test data as a function of an estimated orientation, and as a function of parameters characteristic of a response of the angular position sensor (column 3 lines 22-30).

Abe teaches, with respect to claims 8 and 12, that the calculator and means for registering are localized on the solid (Fig 5 item 20).

With respect to claim 13, Abe discloses a timer for rating the registration of the successive estimations of the orientation of the solid (Fig 3 items 310 and 60). It is well known that digital processors operate with a timer clock. The application of the device by Abe in a virtual reality headset would necessitate that the timer be used for tracking motion.

It would have been obvious to one of ordinary skill in the art to replace the sensors of Griffis with those of Abe. This modification would allow for all of the sensing and computing functionality to be centrally located instead of spread between the legs of the support system. Angular position sensors that are not dependent on the support leg lengths would be able to determine orientation of the platform in question even if the other platform is moving. In such a situation, monitoring the lengths of the support legs would not accurately yield the platform position.

Conclusion

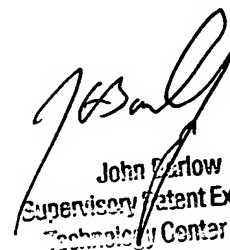
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Moffat whose telephone number is (571) 272-2255. The examiner can normally be reached on Mon-Fri, from 7:30-4:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on (571) 272-2269. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

10/15/06

JM


John Barlow
Supervisory Patent Examiner
Technology Center 2800